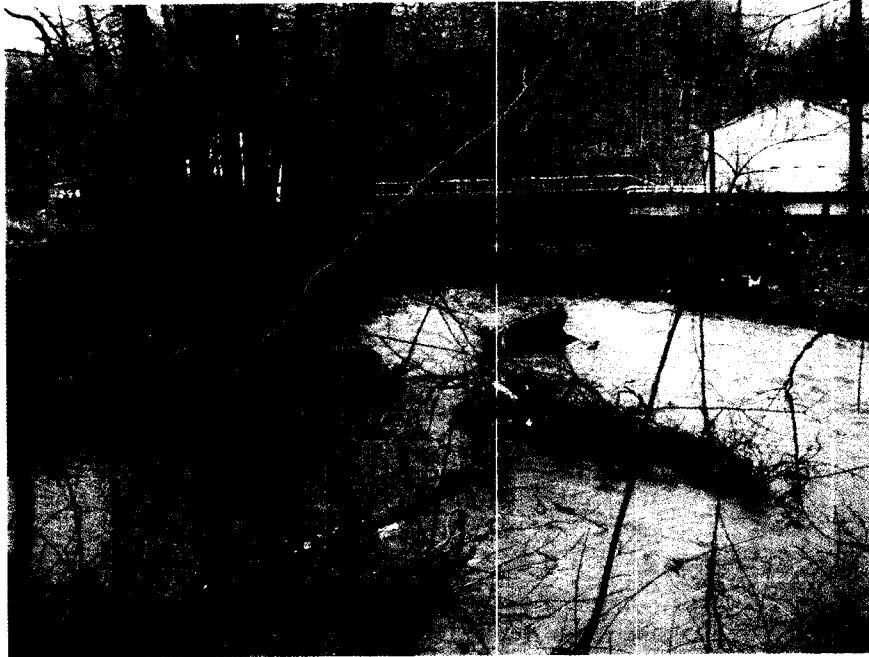


CONNECTICUT DEPARTMENT OF TRANSPORTATION

STATE AND FEDERAL BRIDGE PROGRAM
PRELIMINARY APPLICATION

FISCAL YEAR 2008



WEST MAIN STREET OVER
HOCKANUM RIVER

VERNON, CONNECTICUT

Connecticut Department of Transportation Bridge No. 04573

FROM THE DESK OF			
JAMES E. GEORGES			
NAME	FYI	FLS	PLS
		DO	SEE ME
MAY 09 2007			
1			
2			
3			
4			
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7			
8			
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10			



CONNECTICUT DEPARTMENT OF TRANSPORTATION

The Honorable Ralph J. Carpenter, Commissioner



PRELIMINARY APPLICATION FOR THE LOCAL BRIDGE PROGRAM

Preliminary application is hereby made by the Town/City/Borough of Vernon
for possible inclusion in the Local Bridge Program for Fiscal Year **2008** for the following structure:

Bridge Location: West Main Street over Hockanum River

Bridge Number: 04573 Length of Span: 31 feet

Sufficiency Rating: 53.85 Priority Rating: 52.52

Evaluation & Rating Performed by: ☒ State Forces ☐ Others

If Others, Name of Professional Engineer: N/A

Connecticut Professional Engineers License Number: _____

Engineering Firm: _____

Engineer's Address:

Engineer's E-mail Address: _____

Description of Existing Condition of Structure: *(attach description)*

Description of Project Scope: A (note repair code; attach narrative/preliminary plans & specifications).

Municipal Official to Contact (name & title): Tim Timberman, P.E., Town Engineer

Mailing Address: Town of Vernon, 14 Park Place, Vernon, CT 06066

Telephone: (860) 870-3663 FAX: (860) 870-3683

E-mail: tim.timberman@ci.vernon.ct.us

Preliminary Cost Figures:

Preliminary Engineering Fees (Include Breakdown of Fees) (Not to Exceed 15% of Construction Costs)	\$ 220,650
---	------------

Rights-of-Way Cost (If applicable)	\$ 25,000
------------------------------------	-----------

Municipally Owned Utility Relocation Cost	\$	75,000
---	----	--------

Estimated Construction Costs (Include Detailed Estimate)	\$ 1,471,000
--	--------------

Construction Engineering (Inspection, Materials Testing)
(Not to Exceed 15% of Construction Cost) \$ 220,650

Contingencies (10% of Construction Costs Only)	\$	147,100
--	----	---------

Total Estimated Project Cost	\$ 2,159,400
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Financial Aid Data:

Federal Reimbursement: *(Limited to qualifying bridges – See Appendix 1)*

Total Estimated Project Cost multiplied by 80%:

Federal Aid Request \$ 1,727,520

State Local Bridge Project Grant: *(Cannot be combined with Federal reimbursement)*

Allowable Grant Percentage N/A % of Total Cost *(see Appendix 2).*

Project Grant Request \$ N/A

State Local Bridge Project Loan: *(Maximum 50% of total project cost)*

Project Loan Request \$ N/A

Schedule: (Anticipated Dates)

Public Hearing Conducted: August 31, 2007

Design Completion: December 31, 2008

Property Acquisition Completion: January 31, 2009

Utilities Coordination Completion: January 15, 2009

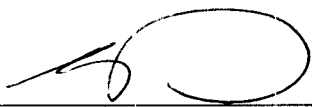
Construction Advertising: January 31, 2009

Supplemental Application Submission: _____

Start of Construction: May 1, 2009

Completion of Construction: November 30, 2010

I hereby certify that the above is accurate and true, to the best of my knowledge and belief.

Signature: 
(Chief Elected Official, Town Manager, or other Officer Duly Authorized)

Date: May 8, 2007

Return completed applications to: Mr. Stanley C. Juber
Administrator of the Local Bridge Program
Connecticut Department of Transportation
2800 Berlin Turnpike, P.O. Box 317546
Newington, Connecticut 06131-7546



West Main Street Bridge - Looking North

Description of the Existing Condition of the Structure:

The bridge carrying West Main Street over the Hockanum River is located near the intersection of West Main Street and Maple Street, approximately 500 feet east of S.R. 527.

Bridge No. 04573 consists of a single span, concrete encased steel multi stringer bridge superstructure supported on concrete abutments with u-shaped wingwalls. The bridge, constructed in 1938, has a span length of 25 feet, with an overall length of 31 feet. The bridge width is 33 feet, curb to curb, and 47 feet out to out. Sidewalks are located along both fascias of the bridge. The concrete bridge deck has been overlayed with a skim coat wearing surface. The bridge railing on both sides consists of vertical pipe posts with dual horizontal pipe rails. A metal beam rail is carried over the structure from the approaches along the northerly railing.

A Bridge Inspection Report issued by Connecticut DOT on July 11, 2003 rated the deck condition as poor (overall rating 3), the superstructure as fair (rating of 5) and substructure as marginal (rating of 4). In the Connecticut DOT's 2008 Local Bridge Program, the bridge has a Sufficiency Rating of 53.85 and is listed as being eligible for State and Federal Funding. According to the Flood Insurance Study for the Town of Vernon, Revised August 9, 1999, the existing structure is overtopped by the 100-year flood.



West Main Street - Looking West

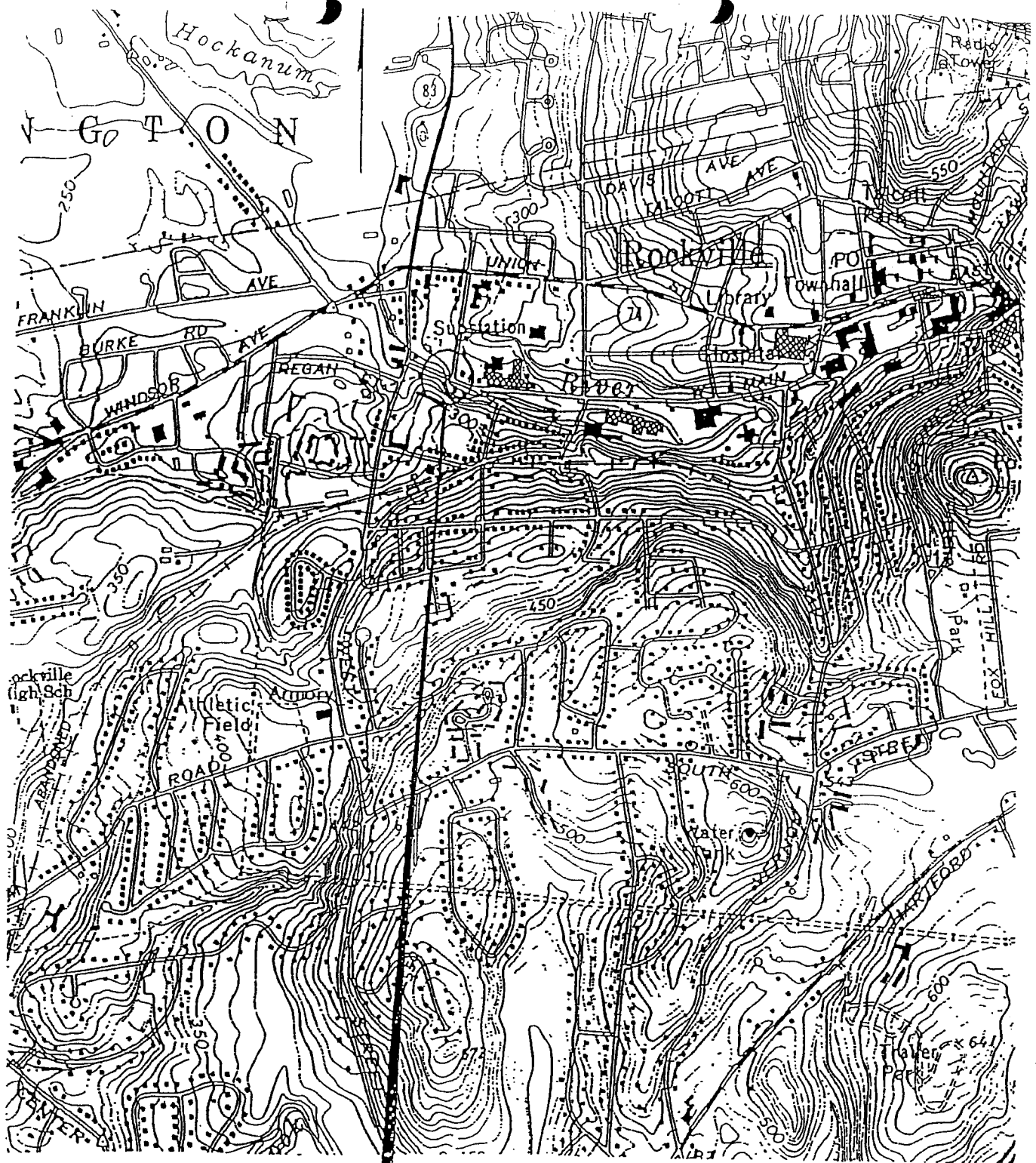
Description of the Proposed Improvements:

The proposed improvements for the West Main Street Bridge consist of removing and replacing the existing structure. The Flood Insurance study shows that the bridge is in flood hazard area AE (base flood elevations determined) and there is a designated floodway in this area. Preliminary hydraulic computations indicate that, in order to comply with the Flood Management Certification requirements, the new structure should have a hydraulic opening of 40 feet. Some of the ConnDOT design criteria for a Large Structure cannot be met within the constraints of the location, street geometry and existing right-of-way. The proposed bridge will be designed to pass the 100-year flow for unencroached conditions, but the freeboard will be less than one foot and the required 2-foot underclearance will not be available. West Main Street is a local street with low traffic volumes and alternate routes are available, therefore according to the Local Bridge Program Manual for Fiscal Year 2008 and the 2000 ConnDOT Drainage Manual, Chapter 9 - Bridges, lower design criteria can be approved by the Department.

The new structure will have a clear span of approximately 40 feet and a curb-to-curb width of 35 feet. The superstructure will consist of butted precast/prestressed concrete deck units supported by cantilever type reinforced concrete abutments and u-type wingwalls. The footings are

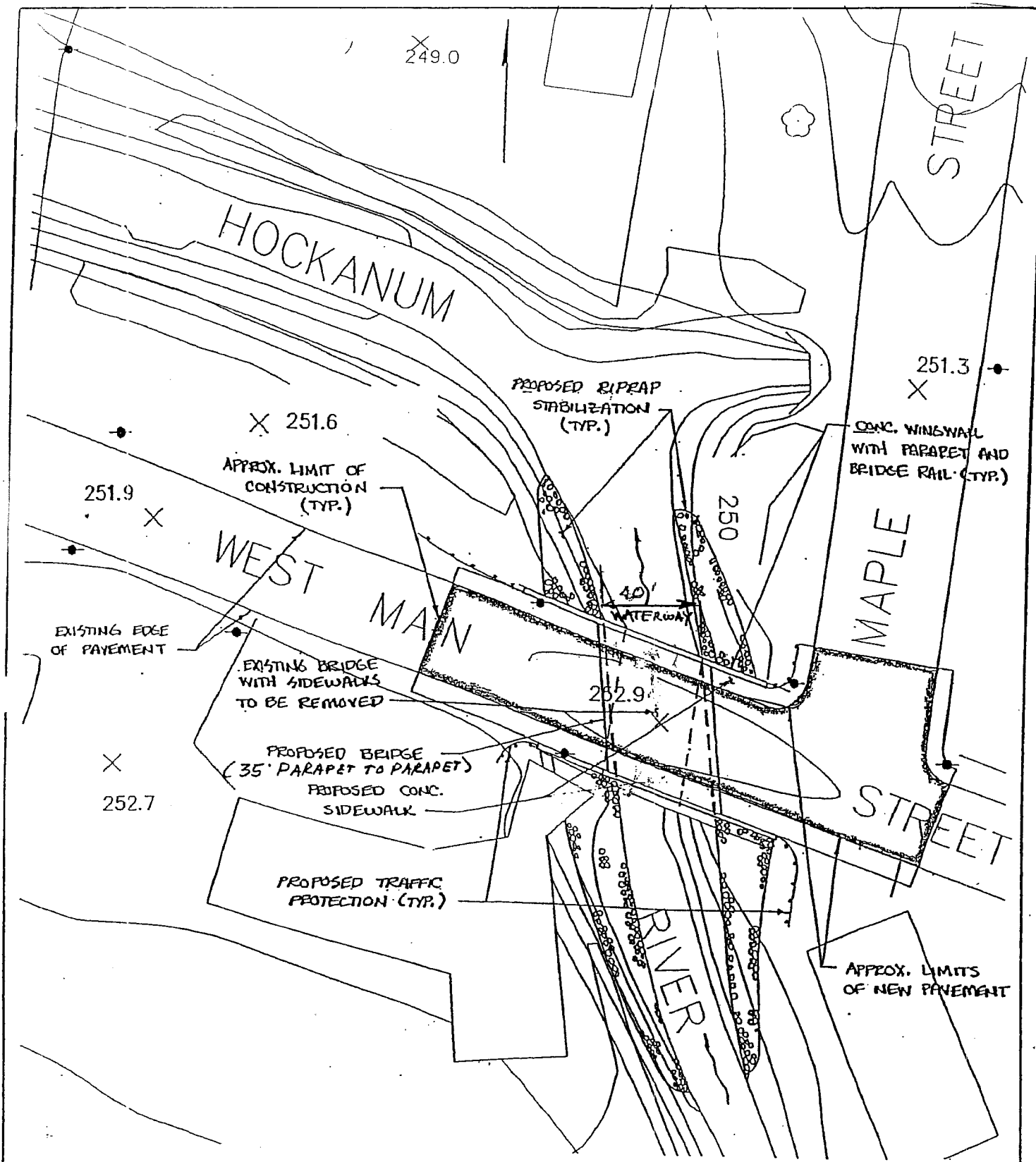
proposed to be founded on piles. A 5-foot wide sidewalk is proposed to be constructed along the north side of the bridge.

The roadway approaches would be modified for the minor profile adjustments and metal beam railings provided on both sides. The abutments would be protected with riprap and the channel banks stabilized in the vicinity of the new bridge. Relocation of a 12" water main on the south side of the bridge and a buried 6" gas main on the north side of the bridge are anticipated.



PROJECT LOCATION

TOWN OF VERNON
PROJECT LOCATION PLAN
WEST MAIN STREET OVER HOCKANUM RIVER
WEST MAIN STREET VERNON



TOWN OF VERNON
SITE PLAN
WEST MAIN STREET OVER HOCKANUM RIVER
WEST MAIN STREET VERNON

TOWN OF VERNON
WEST MAIN STREET BRIDGE OVER THE HOCKANUM RIVER
PRELIMINARY CONSTRUCTION COST ESTIMATE
APRIL 2007

CONSTRUCTION ITEM	QUANTITY	PAY UNIT	UNIT COST	TOTAL COST
I. CONTRACT ITEMS				
A. ROADWAY ITEMS				
PAVEMENT	500	SY	\$120	\$60,000
RAILING	200	LF	\$24	\$4,800
DRAINAGE	1	LS	\$25,000	\$25,000
EROSION CONTROL	1	LS	\$15,000	\$15,000
EXCAVATION	260	CY	\$50	\$13,000
CONCRETE SIDEWALK	140	SY	\$95	\$13,300
CURBING	300	LF	\$40	\$12,000
TOTAL ROADWAY ITEMS				\$143,100
B. BRIDGE ITEMS				
REMOVE EXISTING SUPERSTRUCTURE	1470	SF	\$50	\$73,500
STRUCTURE EXCAVATION	400	CY	\$40	\$16,000
CLASS A CONCRETE (SUBSTRUCTURE)	120	CY	\$800	\$96,000
CAST-IN-PLACE CONCRETE PILES	720	LF	\$55	\$39,600
DEFORMED STEEL BARS	15000	LB	\$2	\$30,000
NEW BRIDGE STRUCTURE	1740	SF	\$125	\$217,500
PERVIOUS STRUCTURE BACKFILL	180	CY	\$50	\$9,000
COFFERDAM & DEWATERING	100	LF	\$300	\$30,000
REMOVAL OF EXISTING MASONRY	140	CY	\$300	\$42,000
CHANNEL EXCAVATION	400	CY	\$35	\$14,000
TOTAL BRIDGE ITEMS				\$553,600
C. ENVIRONMENTAL COMPLIANCE				
ESTIMATED COST	1	LS		\$45,000
TOTAL ENVIRONMENTAL COMPLIANCE				\$45,000
D. TRAFFIC ITEMS				
				\$0
TOTAL TRAFFIC ITEMS				\$0
E. MINOR ITEMS				
ESTIMATED COST	1	LS		\$142,000
TOTAL MINOR ITEMS				\$142,000
F. LUMP SUM ITEMS				
MOBILIZATION - 7.5%	1	LS		\$55,000
TRAFFIC MAINTENANCE - 3%	1	LS		\$2,200
CONSTRUCTION STAKING - 1%	1	LS		\$7,100
TOTAL LUMP SUM ITEMS				\$64,300
I. TOTAL ESTIMATED CONTRACT ITEMS				\$948,000

CONSTRUCTION ITEM	QUANTITY	PAY UNIT	UNIT COST	TOTAL COST
II. INCIDENTALS AND CONTINGENCIES				
INCIDENTALS - 21%	1	LS		\$176,000
II. TOTAL INCIDENTALS AND CONTINGENCIES				\$176,000
ESTIMATED CONSTRUCTION COST				\$1,124,000
COST ADJUSTMENT				
10% ANUALLY - 3 YEARS				\$347,000
TOTAL ESTIMATED CONSTRUCTION COST				\$1,471,000

STRUCTURE NO. 04573

WEST MAIN STREET
over
HOCKANUM RIVER
VERNON

Indepth Inspection
on
11/3/05

Inspected by Haks - 25
for Area 2

<u>TEAM:</u>	Forwarded to Senior	Sandra Dumas	Date	12/7/05
<u>SENIOR:</u>	Reviewed by Senior	Sandra Dumas	Date	12/27/05
	BMM Required		No	
	Town Bridge		Yes	
	Rating <= 5 (Items 58,59,60 or 62)		Yes	
	Forwarded to Supervisor	Sandra Dumas	Date	2/16/06
	Forwarded to "To Be Copied Drawer"	<input type="checkbox"/>	Date	
	Date BRI-19 Entered		2/16/06	
<u>SUPERVISOR:</u>	Reviewed by Supervisor	Sandra Dumas	Date	2/16/06
<u>SUPPORT:</u>	Date Copies Made		BMM No	

NBI: Yes

Bridge Number **04573**

Inspected By: John M. ... & ...
Sufficiency Rating **53.72**
Previous Inspection Date **7/14/2003**

STATE OF CONNECTICUT
DEPARTMENT OF TRANSPORTATION
BRIDGE SAFETY & EVALUATION
STRUCTURE EVALUATION
SHEET 1 OF 2 FORM BR-19 REV 10/00

BS&E Received ☐ Data Entry By: ... SHEET 1 OF 2 (INSP. REPORT)
Copies Made ☐ Data Entry Date: 2/16/06

IDENTIFICATION

Bridge Name **VERNON** Town Code **78250**

5) Inventory Route:
A) Record Type **1** City Street **5** D) Route Number **00000**
B) Signing Prefix **5** E) Directional Suffix **0** NA
C) Level of Service **0** None of the bel

6) Feature Intersected **HOCKANUM RIVER**

7) Facility Carried **WEST MAIN STREET**

9) Location **500 FEET EAST OF SR 527**

11) Milepoint **0.08** Miles
16) Latitude **41 deg 51 min 54.00 sec**
17) Longitude **72 deg 27 min 48.00 sec**

98) Border Bridge:
A) State Code **0** B) Percent Responsibility **0** %

C) Border Town Name

99) Border Bridge Structure No

STRUCTURE TYPE AND MATERIAL

43) Structure Type, Main: **3** Steel
A) Material **0** Other
B) Design Type **2** Stringer/Multi-beam

44) Structure Type, Approach:
A) Material **0** Other
B) Design Type **0** Other

45) Number of Spans, Main Unit **1**
46) Number of Approach Spans **0**
107) Deck Structure Type **1** Concrete Cast-in-Place

108) Wearing Surface/Protective System:
A) Type of Wearing Surface **6** Bituminous
B) Type of Membrane **0** None
C) Type of Deck Protection **0** None

90) Inspection Date **11/03/05** Inspection Team **2215** 91) Frequency Class **24** **01**
Indepth Insp **10/12/1995** Deck Survey **11/03/05** Access **0** Flagman **0**

CRITICAL FEATURE INSPECTIONS

Type	Frequency	Team	Date
Fracture:			
Uwaler:			
Special:			

RED FLAG

AGE AND SERVICE

27) Year Built **1938** 106) Year Reconstructed **0000**

42) Type of Service:
A) On **5** Highway-pedestria **0** B) Under **5** WATERWAY

28) Number of Lanes:
A) On **2** B) Under **0**

29) Average Daily Traffic **4900**

109) Percent Truck **2** %

30) Year of ADT **1999**

19) Bypass, Detour Length **1** miles

GEOMETRIC DATA

46) Length of Max Span **25** ft

49) Structure Length **31** ft

50) Curb or Sidewalk Widths:
A) Left **6.0** ft **0** B) Right **3.0** ft

51) Brg Rdwy width, curb-curb **33.0** ft

52) Deck Width, Out-Out **47.0** ft

32) Approach Roadway Width **30** ft

33) Bridge Median **0** No Median

Deck Area **1457** sqft

34) Skew Angle **20** deg

35) Structure Flared **0**

10) Inv. Rte. Min. Vert Clearance **99** ft

47) Log Inv. Rte. Total Horiz Cir.: **33.0** ft

47) RLog Inv. Rte. Total Horiz Cir.: **99** ft

53) Min Vert Clearance Over Bridge **99** ft

54) Min Vert Under Clearance **0** ft

55) Min Lat Under Clearance on Right **99.9** ft

56) Min Lat Under Clearance on Left **0.0** ft

BRIDGE COMMENTS

FENCE PRESENT ONLY ON SOUTH SIDE.

STRICTURE EVALUATION

Bridge Number	04573	NBIS Length
Town Name	VERNON	Yes 31

Facility Carried
WEST MAIN STREET

Inspected By: Bill Williams & [Signature]

LOAD RATING AND POSTING	
31) Design Load	0
63) Operating Rating Type	5
64) Operating Rating	58.0
65) Inventory Rating Type	5
66) Inventory Rating	34.0
Evaluation Code	J
Year of Evaluation	2002
70) Bridge Posting	5
41) Structure Status	A
Open, no restriction	

CONDITION

CONDITION		Rating	By	APPROVALS		Rating	By
58) Deck	3	JM	67) Structure Evaluation	4		4	M
59) Superstructure	5	JM	68) Deck Geometry	4		4	JM
60) Substructure	4	JM	69) Under Clear Vert & Horiz	N		2	M
61) Channel & Chan. Protection	6	JM	71) Waterway Adequacy	8		8	M

113) Scour Critical

Items 58 Thru 72 Checked By: _____

OTHER FEATURES

Fence Required		Fence Present		Fence Height		Fence Type		Fence Material		Fence Top Type	
No	Yes	6.0	ft	Chain Link	Chain Link	Vertical					
1	2	1	2	1	2	1	2	1	2	1	2

Barrel Ladder		Stand Pipes		Cat Walks		Movable Inspection System		Loose Concrete Checked?	
No	Yes	No	Yes	No	Yes	No	Yes	No	Yes

Proposed Next Insp Year 2005

INSPECTION COMMENTS

REVIEWED BY ML Date 11/23/05

REVIEWED BY M. A. [signature] Date 11/23/05

MAK
Date 11/23/05

Structure Inventory and Appraisal Sheet (English Units)

Bridge Key: 04573

Agency ID: 04573

Sufficiency Rating: 80.6

IDENTIFICATION

State 1: 91 Struc Num 8: 04573
 Facility Carried 7: WEST MAIN STREET Location 9: 500 FEET EAST OF SR 527
 Rte. (On/Under) 5A: Route On Structure Rte. Signing Prefix 5B: 5 City Street
 Level of Service 5C: 0 None of the below Rte. Number 5D: 00000
 Directional Suffix 5E: 0 N/A (NBI) % Responsibility: 0
 SHD District 2: 01 County Code 3: Tolland
 Place Code 4: VERNON Mile Post 11: 0.080 mi
 Feature Intersected 6: HOCKANUM RIVER
 Latitude 16: 00d 00' 00" Longitude 17: Missing
 Border Bridge Code 98: Unknown (P)
 Border Bridge Number 99: NA

INSPECTION

Frequency 91: 24 months Inspection Date 90: 11/3/2005 Next Inspection: 11/03/2007
 FC Frequency 92A: NA FC Inspection Date 93A: NA Next FC Inspection: NA
 UW Frequency 92B: NA UW Inspection Date 93B: NA Next UW Inspection: NA
 SI Frequency 92C: NA SI Date 93C: NA Next SI: NA
 Element Frequency: 24 months Element Inspection Date: 11/03/2005 Next Elem. Insp. Due: 11/03/2007

CLASSIFICATION

Defense Highway 100: 0 Not a STRAHNET hwy Parallel Structure 101: No || bridge exists
 Direction of Traffic 102: 2 2-way traffic Temporary Structure 103: Unknown (NBI)
 Highway System 104: 0 Not on NHS NBIS Length 112: Long Enough
 Totl Facility 20: 3 On free road Functional Class 26: 19 Urban Local
 Historical Significance 37: 5 Not eligible for NRHP
 Owner 22: 3 Town/Township Hwy Agency
 Custodian 21: 3 Town/Township Hwy Agency

STRUCTURE TYPE AND MATERIALS

Number of Approach Spans 46: 0 Number of Spans Main Unit 45: 1

Main Span Material/Design 43A/B:

3 Steel 02 Stringer/Girder

Deck Type 107: 1 Concrete-Cast-in-Place
 Wearing Surface 108A: 6 Bituminous
 Membrane 108B: 0 None
 Deck Protection 108C: None

CONDITION

Deck 58: 3 Serious Super 59: 5 Fair Sub 60: 4 Poor
 Culvert 62: N N/A (NBI) Channel/Channel Protection 61: 6 Bank Slumping

LOAD RATING AND POSTING

Inventory Rating Method 65: 2 AS Allowable Stress Operating Rating Method 63: 2 AS Allowable Stress
 Inventory Rating 66: HS27.8 Operating Rating 64: HS41.6
 Design Load 31: 0 Other or Unknown Posting 70: 5 At/Above Legal Loads
 Posting status 41: A Open, no restriction

AGE AND SERVICE

Year Built 27: 1938 Year Reconstructed 106: Unknown
 Type of Service on 42A: 5 Highway-pedestrian
 Type of Service under 42B: 5 Waterway
 Lanes on 28A: 2 Lanes Under 28B: 0 Detour Length 19: 0.6 mi
 ADT 29: 4,000 Truck ADT 109: 5 % Year of ADT 30: 1993

APPRAISAL

Bridge Rail 36A: 0 Substandard Approach Rail 36C: 0 Substandard
 Transition 36B: 0 Substandard Approach Rail Ends 36D: 0 Substandard
 Str. Evaluation 67: 14 Deck Geometry 68: 4 Tolerable
 Underclearance, Vertical and Horizontal 69: N Not applicable (NBI)
 Waterway Adequacy 71: 7 Above Minimum Approach Alignment 72: 7 Above Min Criteria
 Scour Critical 113: 6 Calcs not made

GEOMETRIC DATA

Length Max Span 48: 25.0 ft Structure Length 49: 31.0 ft
 Curb/Sdwk Width L 50A: 6.0 ft Curb/Sidewalk Width R 50B: 3.0 ft
 Width Curb to Curb 51: 33.0 ft Width Out to Out 52: 47.0 ft
 Approach Roadway Width 32: 30.0 ft Median 33: 0 No median (w/ shoulders)
 Deck Area: 1,453.1 sq. ft
 Skew 34: 20.00 ° Structure Flared 35: 0 No flare
 Minimum Vertical Clearance Over Bridge 53: 328.1 ft
 Minimum Vertical Underclearance Reference 54A: N Feature not hwy or RR
 Minimum Vertical Underclearance 54B: 0.0 ft
 Minimum Lateral Underclearance Reference R 55A: N Feature not hwy or RR
 Minimum Lateral Underclearance R 55: 327.8 ft
 Minimum Lateral Underclearance L 56: 0.0 ft

PROPOSED IMPROVEMENTS

Bridge Cost 94: \$ 1 Type of Work 75: 38 Other Structural
 Roadway Cost 95: \$ 1 Length of Improvment 76: 20.0 ft
 Total Cost 96: \$ 2 Future ADT 114: 4,000
 Year of Cost Estimate 97: 1999 Year of Future ADT 115: 2013

NAVIGATION DATA

Navigation Control 38: 0 Permit Not Required
 Vertical Clearance 39: 0.0 ft Horizontal Clearance 40: 0.0 ft
 Pier Protection 111: Unknown (NBI) Lift Bridge Vertical Clearance 116:

ELEMENT CONDITION STATE DATA

Str Unit	Elm/Env	Description	Units	Total Qty	% in 1	Qty. St. 1	% in 2	Qty. St. 2	% in 3	Qty. St. 3	% in 4	Qty. St. 4	% in 5	Qty. St. 5
UNIT0	13/3	Unp Conc Deck/AC Ovl	(SF)	1,453	100 %	1,453	0 %	0	0 %	0	0 %	0	0 %	0
UNIT0	56/3	Concrete sidewalk	sq.ft	280	0 %	0	100 %	280	0 %	0	0 %	0	0 %	0
UNIT0	106/3	Unpnt Stl Opn Girder	(LF)	289	0 %	0	0 %	0	100 %	289	0 %	0	0 %	0
UNIT0	215/3	R/Conc Abutment	(LF)	98	19 %	18	60 %	59	15 %	15	6 %	6	0 %	0
UNIT0	334/3	Metal Rail Coated	(LF)	98	39 %	39	31 %	30	31 %	30	0 %	0	0 %	0
UNIT0	359/3	Soffit Smart Flag	(EA)	1	0 %	0	0 %	0	0 %	0	0 %	0	100 %	1

BRIDGE SUMMARY

Bridge No. 04573 was constructed in 1938. It carries West Main Street over The Hockanum River in Vernon, Connecticut. The bridge is a single span concrete encased steel girder with reinforced concrete deck supported by reinforced concrete abutments. The curb-to-curb roadway width is 32.5 feet with sidewalks on both sides and the overall length of the bridge is 31 feet. According to information in the Connecticut Department of Transportation files, the Inventory Rating for an AASHTO HS20 loading is 34 Tons. No structural analysis has been performed. The rating is based on Concrete Judgment Rating. During this routine inspection performed in October 2005, the bridge was found in poor condition. The following is a list of observations, notable deterioration and deficiencies:

Deck

1. The pavement has random sealed cracks.
2. The underside of the deck has extensive deterioration with areas of light scale and discoloration throughout. There are also numerous hollow areas, large spalls up to 2 inches deep with and without exposed rebar and random cracks.
3. The sidewalk on the north side has a 20-foot long crack with two areas of heavy scale up to 3/4 inches deep. Seal the cracks and patch the areas of scale.
4. The approach sidewalk at the northwest corner has settled 1 1/2 inches. There is an inadequate bituminous ramp in place. At the northeast corner the sidewalk has settled one inch. Provide a bituminous ramp of adequate length to remove the trip hazard.
5. The base of the rail (parapet) has areas of moderate scale throughout, typically at the areas where the posts are embedded. There are also vertical hairline cracks on both elevations, some with efflorescence.
6. On both fascias of the bridge there are cracks, some with efflorescence. On the north fascia one longitudinal crack is 12 feet long and open to 1/8 inch.

Superstructure

1. The concrete encasement of the steel beams is in fair condition with areas of light to moderate scale throughout, random cracks, shallow rebars and hollow areas. There are several locations where there is a longitudinal crack at the bottom of the beam at the fascia at the approximate level of the bottom flange of the girder. These cracks are open to 3/4 inches.
2. Where spalls have exposed the steel beams and bearings there is heavy rust. *visible*
3. There is no bridge identification number. Install BIN.

Substructure

1. *abutments*
There are in *poor* condition. The east abutment has two full height vertical cracks to 1/8 inch and spall at the north end. The west abutment has a large area of severe scale at the north end at the bottom of the stem and top of the footing. The area encompasses 6 SF on the east face and 8 SF on the north end. It is up to 6 inches deep. There is one rebar exposed with heavy rust.
2. The wingwalls are in poor condition.
 - The southwest wingwall has severe scale throughout. At the top it is up to 2 inches deep. The remaining area is hollow.
 - The northwest wingwall is stone masonry with a reinforced concrete cap. The wall is bulging approximately 3 inches and the mortar is cracked/missing throughout.

The cap has severe scale up to 3 inches deep at the top. The scale undermines the MBR posts.

- At the southeast there is a masonry retaining wall with voids up to 6 inches deep and a reinforced concrete wall that has an 8" diameter stump in the joint between the wall and the abutment.
- At the northeast there is a stone masonry retaining wall and a reinforced concrete wall. The stone masonry is missing mortar and several stones are displaced and the wall is displaced approximately 2 inches compared to the north end of the abutment. The concrete portion of the wall is displaced to the north approximately 1/2 inch compared to the north face of the abutment.
- The top of the west abutment footing is exposed up to 8 inches.

Channel & Channel Protection

1. The channel is in satisfactory condition. The abutments constrict the channel through the structure.
2. Upstream the flow is generally toward the southwest wingwall. At the base of the south end of the west abutment adjacent to the wingwall there is a small scour hole that has exposed the footing to a depth 8 inches. The area of scour is approximately 8 feet in diameter by up to 1 foot deep.
3. There is a utility pipe, underwater, that runs across the channel on the under the bridge. The pipe acts as a low head dam. The water level drops on the downstream side of the pipe approximately 2 inches.
4. The banks of the river are well vegetated with large and small trees. The tree roots are exposed in places, the trees overhang the river and a small tree has fallen across the river but is 'hung up' and not in the water. Debris is caught in the vegetation at random locations.

Approach Condition

1. The approach pavements are in satisfactory condition with extensive cracking (sealed) at the west approach and very minor cracking (sealed) at the east approach.
2. The base of several of the metal beam rail posts at the northwest approach are undermined by severe scale on the concrete cap of the northwest wingwall. Remove the deteriorated concrete and patch.

Connecticut Department of Transportation

Bridge Inspection Report BRI-18

6

BRIDGE #: 04573

INSPECTION DATE: 11/3/2005

INSPECTION TYPE: Indepth **PREVIOUS INSPECTION DATE:** 7/11/2003 **SNOOPER REQUIRED:** No
INSPECTION PERFORMED BY: HAKS **SNOOPER USED:** No

TOWN: VERNON **FEATURE CARRIED:** WEST MAIN STREET **YEAR BUILT:** 1938
LOCATION: 500 FEET EAST OF SR 527 **FEATURE INTERSECTED:** HOCKANUM RIVER **YEAR REBUILT:** 0
MAIN MATERIAL: Steel **MAIN DESIGN:** Stringer/Multi-beam or Gird

INSPECTION VISITS:

Inspection Date: 11/3/2005 **Start Time:** 9:00 AM
Temperature: 55 °F **End Time:** 12:00 PM

INSPECTORS:

Inspector: J. Messier **Task:** Team leader
Inspector: L. Vers **Task:** Assistant Team Leader

58. DECK **REINFORCED CONCRETE DECK WITH BITUMINOUS OVERLAY** **OVERALL RATING** 3

RATING

OVERLAY	6	There are random sealed cracks and light sand in the curb lines. See sheet 10 and photo 4.
DECK STR. CONDITION	3	There are areas of very light scaling, honeycomb and efflorescence. Isolated large and small spalls with and without exposed rebar. The largest is in Bay 6 at the west abutment 4' x 3' x 1". There are several large hollow areas including the whole of Bay 2. Including the areas of very light scale and honeycombing the underside deterioration is approximately 50%. See sheet 11 and photos 5 and 6.
CURBS	7	Minor cracks with small chips and scrapes. The average curb reveal is 5 3/4". See sheet 10.
MEDIAN	N	
SIDEWALKS	6	The north sidewalk has a 20' long crack open to 3/4". There are two areas of scale approximately 3/4" deep approximately 8" x 6". At the northwest corner the approach has settled 1 1/2" and at the northeast corner the approach sidewalk has settled 1". See sheet 10 and photos 7 and 8.
PARAPET	6	There are vertical cracks, some with efflorescence, and areas of scale, up to 1" deep, at the base of the rail posts. On both fascias of the bridge there are cracks, some with efflorescence. On the north fascia one longitudinal crack is 12' long and open to 1/8". See sheet 10.
RAILING	6	The original two pipe rail on the north side has fresh paint with painted over pitting and small areas of rust. The railing on the south side has not been recently painted and areas of heavy rust and rust on 50% of the steel. On the north side an MBR has been installed. There are no deficiencies for the portion on the bridge. See sheet 10 and photos 2 and 4.
PAINT	5	Fresh paint on the north bridge rail with areas of light rust. On the south rail paint system has failed on 50% of the steel. See photo 2.
FENCE	7	There is a 5' high chain link fence on the south side that provides a barricade for the utility pipe that has been installed on the sidewalk. There are random areas of light rust.
DRAINS	N	
LIGHTING STANDARD	N	
UTILITIES TYPE/SIZE	7	16" water pipe on the south sidewalk, unknown pipe underwater, 6" diameter steel pipe on the north fascia and in Bay 2. Areas of light rust.
CONSTRUCTION JOINTS	N	
EXPANSION JOINTS	N	

59. SUPERSTRUCTURE **STEEL BEAMS ENCASED IN CONCRETE** **OVERALL RATING** 5

RATING

BEARING DEVICES	5	Steel plate bearings with heavy rust visible at locations where the concrete encasement has spalled off. See photo 10.
STRINGERS	N	
GIRDERS	5	There are cracks, hollow areas, spalls and shallow rebar throughout the concrete encasement. Where the encasement has spalled off heavy rust is visible on the steel. These cracks are open

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59. SUPERSTRUCTURE

STEEL BEAMS ENCASED IN CONCRETE

OVERALL RATING **5**

to 3/4 inches. See sheet 11 and photos 9 and 10.

FLOOR BEAMS **N**

TRUSSES-GENERAL **N**

TRUSSES-PORTALS **N**

TRUSSES-BRACING **N**

PAINT **N**

RUST **5**

Where the steel is visible under the encasement there is heavy rust.

MACHINERY MOV SPAN **N**

RIVETS & BOLTS **N**

WELDS & CRACKS **N**

TIMBER DECAY **N**

CONCRETE CRACKING **5**

There are cracks in the concrete encasement, open to 3/4" typically at the bottom flange of the steel beams.

COLLISION DAMAGE **8**

MEMBER ALIGNMENT **8**

DEFLECT. UNDER LOAD **N**

VIBR. UNDER LOAD **N**

STAND PIPES **N**

BARREL LADDERS **N**

ARE BARREL LADDERS OSHA COMPLIANT? **NA**

60. SUBSTRUCTURE

REINFORCED CONCRETE ABUTMENTS WITH REINFORCED
CONCRETE WINGWALLS AND MASONRY WINGWALLS

OVERALL RATING **4**

RATING

ABUTMENTS-STEM **4**

At the east abutment there are two full height cracks. One is open to 1/8". At the west abutment there is an area of severe scale at the north end. The area is approximately 6 SF on the east elevations and 8 SF on the north end. It is up to 6" deep. Within this area there is one rebar with heavy rust. See sheets 12 and 13 and photos 11 and 12. *exposed*

ABUTMENTS-BACKWALL **7**

There are random cracks and one spall around the utility pipe in Bay 2 at the west abutment. See sheets 12 and 13.

ABUTMENTS-FOOTINGS **6**

In the area of the of the severe scale on the abutment stem the the top of the footing also has severe scale up to 5" deep. The top of the footing is visible up to 8" at the west abutment and 6" at the east abutment both for the full length. See sheets 12 and 13.

ABUT.-SETTLEMENT **8**

ABUTMENTS-WINGWALLS **4**

There is extensive deterioration of the wingwalls. The southwest wingwall has extensive areas of severe scale up to 2" deep and the area where there is no scale the concrete is hollow. At the southeast there is a large void in the masonry wingwall. At the northwest wingwall the stone masonry has cracked mortar throughout and is bulging approximately 3". The reinforced concrete cap on the northwest wingwall has areas of severe scale that undermines the MBR posts mounted to the top. The northeast stone masonry wingwall has loose and missing mortar and displaced stones and lateral displacement at the interface with the back of the abutment up to 2". See sheets 14 and 15 and photos 13 and 14.

PIERS/BENTS-CAPS **N**

PIERS/BENTS-PILE BENT **N**

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60. SUBSTRUCTURE

REINFORCED CONCRETE ABUTMENTS WITH REINFORCED
CONCRETE WINGWALLS AND MASONRY WINGWALLS

OVERALL RATING 4

PIERS/BENTS-COLUMN	N	
PIERS/BENTS-FOOTINGS	N	
PIERS/BENTS-SETTLEMENT	N	
EROSION-SCOUR	6	There is a small scour hole in front of the southwest wingwall. It is approximately 8' in diameter and up to 1 foot deep. The tops of the footings are exposed up to 8" on the west abutment and up to 6" on the east abutment. See sheets 16 - 19.
CONCRETE CRACK-SPALL	4	See above items.
STEEL CORROSION	N	
PAINT	N	
TIMBER DECAY	N	
COLLISION DAMAGE	8	
DEBRIS	7	There is minor debris on the seats.

61. CHANNEL & CHANNEL PROTECTION

OVERALL RATING 6

	RATING	
CHANNEL SCOUR	6	There is a small scour hole in front of the southwest wingwall. It is approximately 8' in diameter and up to 1 foot deep. The tops of the footings are exposed up to 8" on the west abutment and up to 6" on the east abutment. See sheets 16 - 19.
EMBANKMENT EROSION	6	There was no visible embankment erosion noted.
DEBRIS	6	Upstream there are what appears to be the remains of a concrete structure (possibly a dam). There is a bicycle on the west bank just upstream of the wingwall. Timber debris in random location on the banks.
VEGETATION	7	The banks are well vegetated and small trees and shrubs overhang the waterway.
CHANNEL CHANGE	6	The flow in generally toward the southwest wingwall and the abutments place a constriction on the channel. The utility pipe under the bridge is underwater and acts as a low head dam. The water level decrease approximately 2" downstream of the pipe. The riverbottom decreases typically 8" on the downstream side of the pipe. See sheet 19.
FENDER SYSTEM	N	
SPUR DIKES & JETTIES	N	
RIP RAP	8	

62. CULVERTS & RETAINING WALL

OVERALL RATING N

APPROACH CONDITION

OVERALL RATING 6

	RATING	
APPROACH SLAB	N	
RELIEF JOINTS	N	
APPROACH GUIDE RAIL	4	Metal Beam Rail at the northwest and northeast. Several base plates are undermined by severe scale up to 40% at the top of the northwest wingwall. See sheets 10 and 14 and photo 14.
APPROACH PAVEMENT	6	There are sealed cracks in the west approach and minor sealed cracks in the east approach.
APPROACH EMBANKMENT	8	
TRAFFIC SAFETY FEATURES:		
BRIDGE RAILINGS	0	

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APPROACH CONDITION

OVERALL RATING 6

TRANSITIONS 0

APPROACH GUARDRAILS 0

APPR. GUARDRAIL ENDS 0

LOAD POSTING

SINGLE UNIT (TONS)

HS (TONS)

4 AXLE (TONS)

3S2 (TONS)

ADVANCE WARNING Y/N

LEGIBILITY

VISIBILITY/LOCATION

MISC.

MIN VERT. UNDERCLR.

POSTED CLR. UNDER BRIDGE

POSTED CLR. ON BRIDGE

ADVANCE WARNING (Y/N)

SPEED LIMIT (IF ANY)

CHARACTER OF TRAFFIC

ADDITIONAL NOTES

ADDITIONAL COMMENTS:

No bridge ID.

Inspectors' Signatures:

1)

Jay Massin

Date: 11/23/05

2)

Date: 11/23/05

3)

Date: __/__/__

4)

Al 471
21463

Date: __/__/__

P.E. Signature:

P.E.#:

Date: 11/23/05

Reviewed by:

Bandra A Dumas

CDOT

Date: 12-27-05

NOV 23 2005